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ABSTRACT

The present invention discloses devices and methods for performing intravascular procedures with out cardiac bypass. The devices include various embodiments of temporary filter devices, temporary valves, and prosthetic valves.

5 The temporary filter devices have one or more cannulae which provide access for surgical tools for effecting repair of the cardiac valves. A cannula may have filters of various configurations encircling the distal region of the cannula, which prevent embolitic material from entering the coronary arteries and aorta.

10 The temporary valve devices may also have one or more cannulae which guide the insertion of the valve into the aorta. The valve devices expand in the aorta to occupy the entire flow path of the vessel. In one embodiment, the temporary valve is a disc of flexible, porous, material that acts to filter blood passing therethrough. A set of valve leaflets extend peripherally from the disc. These leaflets can alternately collapse to prevent blood flow through the valve and extend to permit flow.

15 The prosthetic valves include valve fixation devices which secure the prosthetic valve to the wall of the vessel. In one embodiment, the prosthetic valves have at least one substantially rigid strut, at least two expandable fixation rings located about the circumference of the base of the apex of the valve, and one or more commissures and leaflets. The prosthetic valves are introduced into the vascular
20 system a compressed state, advanced to the site of implantation, expanded and secured to the vessel wall.